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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Paper No. 15

Application Number: 09/162,821
Filing Date: Sept. 29, 1998
Appellant(s): Richard J. Ericson

Randy G. Henley
For Appellant

EXAMINER'S ANSWER

This is in response to appellant's brief on appeal filed March 26, 2001.

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) Status of Claims

The statement of the status of the claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Invention

The summary of invention contained in the brief is deficient because applicant claims support for the claimed invention is found in Fig. 1-3 and page 1, line 28 through page 7, line 33 of the specification (page 2, lines 26-28 of Appeal Brief). However, the claims in issue read on a species elected by the applicant (see paper 7, page 2, lines 3-7) specifically drawn to Figure 1. Figure 2 is a distinct species similar to that shown in Fig. 1, but with a different tensioning mechanism 57 and Fig. 3 is drawn to a distinct species with an entirely different cabling arrangement.

The claimed invention is an elevator system comprising an elevator car 18, counterweight 20, and a motor 38 and drive sheave 40 at the bottom of the shaft, the sheave coupled to the car and counterweight by a flat drive rope 42 and flat suspension rope 22, where the ends 24, 37 of the suspension rope are attached to the top of the shaft.

The invention as claimed further has at least one elevator sheave 30, 32; a deflector sheave 34 attached to the upper shaft; a counterweight sheave 36; and a deflector sheave 49 coupled to the lower part of the shaft. The roping arrangement as claimed is shown in Fig. 1.

Further, a tensioning mechanism 47 for imparting a downward force on the lower deflector sheave 49 is provided in order to maintain tension in the flat rope.

(6) Issues

The appellant's statement of the issues in the brief is correct.

(7) Grouping of Claims

The appellant's statement in the brief that certain claims do not stand or fall together is not agreed with because the claims 6 and 20 are not separately patentable.

Claims 2, 5, 6, 16, 19 and 20 were rejected under 35 U.S.C. 103(a) as nonobvious over Gale in view of Tokyo Rope. The M.P.E.P. states that "For each ground of rejection which appellant contests and which applies to a group of two or more claims, the Board shall select a single claim from the group and shall decide the appeal as to the ground of rejection on the basis of that claim alone" (MPEP pg. 1200-8, col. 2, paragraph (7)) unless the applicant states and argues that the claims do not stand or fall together. Claims within a single ground of rejection are separable when the claims are separately patentable. The applicant has broken the claims of the above ground of rejection into two Groups. Applicant's Group 1 contains claims 2-5 and 16-19 and applicant's Group 2 contains claims 6 and 20. The

ground of rejection contains only the claims in question (6 and 20) and the claims from which they depend (2 and 5 for claim 6 and 16 and 19 for claim 20).

Claims 6 and 20 of Group 2 are not separately patentable over claims 5 and 19 of Group 1. Applicant argues (page 3, lines 1-16 of Appeal Brief) that the tensioning member recited in claims 6 and 20 is "unique" (line 13), "novel and non-obvious" (line 14). In order to be separately patentable over a claim from which it depends, the dependent claim must be novel and non-obvious over other claims in the ground of rejection. In this case, claims 6 and 20 are merely dependent claims and are obvious over claims 5 and 19 from which they depend. Claims 6 and 20 recite only, "a tension applying mechanism for imparting a downward for on the deflector sheave in order to maintain the drive rope in a taut condition". As broadly claimed, such a tensioner is old and well known in the art. For instance, Japanese Patent 64-21180, of record in this application, shows in Figures 1 and 3, a mechanism 19, 13 for imparting a downward force on the idler 17 to maintain tension. It would be obvious to one of ordinary skill in the art to add such a tensioner to claims 5 and 19 in order to avoid slippage and vibration in the drive. Therefore claims 6 and 20 and obvious, and not separately patentable, over claims 5 and 19, respectively, since it introduces only that which is old and well known in the art.

(8) Claims Appealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

The following is a listing of the prior art of record relied upon in the rejection of claims under appeal.

1,132,769	GALE	3-1915
12,640	MURTAUGH	4-1855
JP74020811	TOKYO ROPE MFG. CO.	5-1974
WO 98/29326	AULANKO et al	9-1998

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 2, 5, 6, 16, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gale, Sr. (1,132,769) in view of Tokyo Rope Mfg (JP 74020811).

Gale discloses a hoistway, elevator car C, counterweight 4, and drive motor at the base M, such the motor is coupled to the car and counterweight via a flat drive rope 11. Gale also discloses a suspension rope 3. Gale does not disclose that the suspension rope is a flat rope. The

'811 reference discloses the use of a flat rope for suspension (see English abstract). It would have been obvious to one of ordinary skill in the art to modify the suspension rope of Gale by making it a flat rope as taught by '811 in order to make it more flexible and corrosion resistant.

As to claims 5, and 19, Gale discloses that the rope has a first end coupled to a counterweight (see Fig. 7), that the rope extends down from the first end, loops around the drive sheave 16, loops around a deflector sheave 18 and extends upward to the elevator where the second end terminates.

As to claims 6 and 20, it is noted that Gale discloses a tensioning mechanism comprising weight 12 and sheave 27.

3. Claims 3, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gale in view of the '811 patent as applied to claims 2 and 16 above, and further in view of Murtaugh (12,640).

Gale in view of '811 discloses all elements of the claim except a suspension rope coupled at its first and second ends to the upper portion of the hoistway. Murtaugh discloses such a configuration (see Fig. 1). It would have been obvious to one of ordinary skill in the art to further modify the elevator of Gale by using the suspension rope configuration of Murtaugh in order to effectively alter the length of the suspension rope in order to ensure the proper length.

As to claim 18, it is noted that Murtaugh discloses car sheaves f coupled to the car, the suspension rope having its first and second ends coupled to the upper portion of the hoistway (see Fig. 1) and engaging the sheaves.

4. Claims 13 , 14, 27, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gale in view of Tokyo Rope Mfg (JP 74020811) as applied to claims 2 and 16 above, and further in view of Aulanko et al (WO 98/29326).

Gale in view of '811 discloses all elements of the claim except use of the ropes are made of non-metallic man-made fibers, or urethane. Aulanko et al disclose the use of these materials (page 2, lines 25-30). It would have been obvious to one of ordinary skill in the art to further modify the apparatus of Gale by using the materials taught by Aulanko et al in order to facilitate the use of smaller sheaves and to eliminate the possibility of corrosion of ropes.

5. Claims 2-4, and 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murtaugh (12,640) in view of Gale (1,132,769) and Tokyo Rope Mfg (JP 74020811).

Murtaugh discloses a hoistway, an elevator car A, a suspension rope D coupled to the elevator car and counterweight B, and a drive rope C for moving the car along the suspension rope. Murtaugh does not show a drive motor with a drive sheave in the bottom portion of the hoistway engaging the drive rope or that the ropes are flat. Gale shows a drive sheave 16 with a drive motor M at the bottom of the hoistway engaging flat drive rope 11 (see Fig. 1). It would

have been obvious to one of ordinary skill in the art to modify the drive system of Murtaugh by using the drive configuration of Gale to provide for less manual labor in raising and lowering the elevator. The '811 reference discloses the use of a flat rope for suspension (see English abstract). It would have been obvious to one of ordinary skill in the art to modify the suspension rope of Murtaugh by making it a flat rope as taught by '811 in order to make it more flexible and corrosion resistant.

As to claim 4, Murtaugh in view of Gale and '811 discloses an elevator sheave f, a deflector sheave coupled within the upper portion of the hoistway (g of Murtaugh), a counterweight sheave (g' of Murtaugh), and a suspension rope having its first and second ends coupled to the upper portion of the hoistway (see Fig. 1 of Murtaugh), the rope descending and looping the car sheave, extending up and looping the deflector sheave and going down and looping around the counterweight sheave and rising to its second end. Murtaugh in view of Gale and '811 does not show the elevator sheave on the bottom of the car, however it is well known in the art to put the elevator sheave on the bottom of the car. It would have been obvious to one of ordinary skill in the art to do so in order to reduce the amount of space required above the elevator car at the top of the shaft.

(11) Response to Argument

(1) Whether the Examiner has met his burden to establish a prima facie case of obviousness under 35 U.S.C. 103 in the rejection of Claims 2, 5, 6, 16, 19, and 20 over Gale in view of Tokyo Rope.

The applicant argues that a prima facie case of obviousness has not been established. First, applicant argues that the teaching reference, Tokyo Rope, has been misinterpreted and the reference only discloses the use of the flat rope for a balance rope and not a suspension or drive rope (page 7, lines 24-27 of Appeal Brief). The examiner respectfully disagrees.

The translation of Tokyo Rope provided by the applicant states that "this type of ribbon-form rope has been used as a hoisting rope or balance rope in elevators". By stating a separate use as a hoisting rope and use as a balance rope, the references plainly sets out that the rope can be used in either capacity. If the author of the reference intended only to use the rope as a balance rope, he could have simply stated that it is used in that capacity alone.

The applicant further argues that the translation of Tokyo Rope discloses only problems and solutions associated with balance ropes (page 7, lines 16-31) and suggests that the reference therefore teaches only the use of the rope as a balance rope. However, hoisting ropes and balance ropes in elevator systems share several common problems. Almost all of the problems and solutions discussed in the Tokyo Rope translation are applicable to hoisting

ropes as well as balance ropes. First, the reference discusses the low efficiency of making ribbon-form ropes of the prior art type (pg. 2, lines 16-19). This inefficiency is present whether the ropes are used as balance ropes or hoisting ropes. Second, the reference discusses wear problems with the prior art ropes (pg. 2, lines 30-34). Again, this problem is present regardless of the particular application. Third, the reference promotes the disclosed invention as providing higher corrosion resistance (pg. 3, line 5), greater flexibility (pg. 3, line 4), and elimination of internal stresses in the rope (pg. 3, line 34). These qualities, too, are valuable in hoisting ropes as well as balance ropes. It is noted that the reference does discuss bulging of the rope (pg. 2, lines 22-30), a problem generally seen only in balance ropes. However, taken as a whole, the explicit statement that the rope can be used as a hoisting rope combined with the discussion of several problems and benefits which are common to both types of ropes clearly shows that Tokyo Rope contemplates using the flat rope in a hoisting (suspension or drive) application.

Next , the applicant argues that the motivation to combine the references is lacking or incorrect. First, applicant argues that there is nothing in either reference that suggests the benefits of Applicant's invention (pg. 8, lines 4-5 of Appeal Brief). But, Tokyo Rope simply provides a different motivation for using the flat rope (increased flexibility and corrosion resistance). The fact that the applicant has recognized another advantage which would flow

naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would other be obvious See *Ex parte Obiaya,* 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985). Second, the applicant suggests that there is no motivation to combine the references (pg. 8, lines 15-17). However, the motivation -- to increase flexibility and to increase corrosion resistance -- are clearly stated in Tokyo Rope (pg. 3, lines 4-5). The applicant argues that providing increased flexibility offers no benefit, but it is this increased flexibility that allows the rope to be used with a smaller diameter sheave, which applicant cites as one of the advantages of his device (pg. 2, lines 18-20 of Appeal Brief). Also, increased corrosion resistance is a valid and explicitly stated motivation. That there are other methods of increasing corrosion resistance is irrelevant.

Regarding claims 6 and 20, the examiner believes that these claims are not separately patentable and that they stand or fall with claims 2, 5, 16 and 19, which are discussed above. However, if they are found not to stand or fall with those claims, the following discussion relates to claims 6 and 20.

It is noted that throughout the prosecution of the application, applicant has expressed no concern regarding the specific rejection of claims 6 and 20, arguing against only the rejections of claims 2 and 16, from which 6 and 20 depend.

Applicant argues that the rejection of Gale in view Tokyo Rope does not show "a tension applying mechanism for imparting a downward force on the deflector sheave in order to maintain the drive rope in a taut condition". However, Gale shows a tensioning mechanism

comprising a weight 12 and sheave 27. Inherent in the tensioning mechanism is deflector sheave mount 20 since any force applied to the sheave via tension in the rope without such a mount would simply result in movement of the deflector sheave 18 and not maintaining tension in the rope. The components 12, 27, 20 of the tensioning mechanism work together to impart a downward force on the deflector sheave and therefore tension the rope. The deflector sheave mount 20 holds the deflector sheave rigid in translation, imparting a downward force when the weight 12 and sheave 27 impart a force on the deflector sheave 18 through the belt. With the combination of the downward force applied by the deflector sheave mount and the force applied by the weight 12, the rope is tensioned is maintained in the belt.

(2) Whether the Examiner has met his burden to establish a prima facie case of obviousness under 35 U.S.C. 103 in the rejection of Claims 3, 17, and 18 over Gale in view of Tokyo Rope, and further in view of Murtaugh.

Applicant argues the motivation for combining Murtaugh with Gale and Tokyo Rope is improper. Applicant asserts that motivation for the combination is not within the references and disputes the utility of the motivation. The examiner recognizes that obviousness can only be established by combining or modifying the teaching of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the

art. See *In re Fine,* 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation is explicitly stated in Murtaugh. Murtaugh states "the arranging of cords double over pulleys has the advantage of giving a fixed end by which, as said end is secured to an arbor, they can conveniently be drawn taut, for by simply turning the arbor with a key the cord D [the suspension cord in Fig. 1] will be wound upon it and the object just mentioned effected" (pg. 1, col. 2, lines 54-61).

(3) Whether the Examiner has met his burden to establish a prima facie case of obviousness under 35 U.S.C. 103 in the rejection of Claims 13, 14, 27, and 28 over Gale in view of Tokyo Rope, and further in view of Aulanko et al.

Claims 13 and 14 depend from claim 2. Claims 27 and 28 depend from claim 16. Regarding claims 13, 14, 27 and 28, the applicant relies entirely on the arguments made against the rejection of claims 2 and 16, as discussed in Paragraph 1.

(4) Whether the Examiner has met his burden to establish a prima facie case of obviousness under 35 U.S.C. 103 in the rejection of Claims 2-4 and 16-19 over Murtaugh in view of Gale and Tokyo Rope.

Regarding the rejection of claims 2-4 and 16-19, applicant argues that the rejection is improper because it is based on hindsight. In response to applicant's argument that the conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin,* 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). In this case, Murtaugh (1855), Gale (1915), and Tokyo Rope (1974) were known at the time of the claimed invention. The motivation to replace the manual ratcheted wheel *d* of Murtaugh with the motor and sheave of Gale is simply to minimize manual labor, a motivation which was well known in the art at the time of the claimed invention and which the applicant does not dispute. The introduction of the flat rope of Gale is inherent and necessary because the drive sheave of Gale is designed to accept a flat belt and would not work well with a standard cable. The motivation to combine Tokyo Rope with Murtaugh was within the level of ordinary skill at the time of the claimed invention, since the motivation is explicitly stated in the reference.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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May 29, 2001

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5/31/01

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